FERMILAB IDENTIFICATION TEAM DOCUMENTATION

8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard? ☐ YES ☐ NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals? ☐ YES ☐ NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program will provide an appropriate level of protection at an acceptable cost.

13. Pick the basic implementing assumption from the list.

☐ Major positive impact ☐ Minor negative impact
☐ Minor positive impact ☐ Major negative impact
☒ No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

The requirements identified in #3 have proven to be both successful and cost-effective.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin ☒ Hazard analysis ☐ Identification Team

1. Issue(s)

050. Env - groundwater protection

Focus group
☐ Emergency Management ☐ Fire Protection ☐ Occupational Safety
☒ Environmental Protection ☐ Management & Oversight ☐ Radiation Protection

2. Is there a necessary standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

Safe Drinking Water Act, 42 USC Section 300f et seq.
40 CFR 141-142
40 CFR 144
40 CFR 146
40 CFR 147 Subpart O
Illinois Ground Water Protection Act, IRS 1989 Chapter 111 1/2
35 IAC Subtitle F, Chapter I; 730 - 732
77 IAC 920
DuPage County Health Department Private Water Supply Ordinance (OH-0002-90, Ch.34, DuPage County Code)
Kane County Health Department Ordinance 91-101 Water Well Code

4. Are there any aspects of these necessary standard(s) which do not add value? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards? ☒ YES ☐ NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue? ☐ YES ☐ NO

If yes, continue; otherwise skip to 10.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard? ☐ YES ☐ NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals? ☐ YES ☐ NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The current program provides an acceptable level of protection by adhering to the Class I groundwater standards mandated by the state of Illinois. The implementation of a wellhead protection program as described in the Illinois Groundwater Protection Act will significantly increase the level of performance and protection for the Laboratory. This program will be implemented through appropriate procedures, utilizing accepted published guidelines.

13. Pick the basic implementing assumption from the list.

☐ Major positive impact ☐ Minor negative impact
☐ Minor positive impact ☐ Major negative impact
☒ No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

The current program provides an acceptable level of protection, and the addition of a wellhead program will improve protection at modest cost. An important part of the implementation of the groundwater protection program program is the use of the concentration model to design shielding of targets. These design criteria are in the Fermilab RadCon Manual App.12B.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin ☒ Hazard analysis ☐ Identification Team

1. Issue(s)

051. Env - hazardous waste

Focus group ☐ Emergency Management ☐ Fire Protection ☐ Occupational Safety ☒ Environmental Protection ☐ Management & Oversight ☐ Radiation Protection

2. Is there a necessary standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

RCRA, 42 USC 6901 et seq.
40 CFR 260- 270
RCRA Part B Permit (Illinois Log #131), including Emergency Contingency plan
29 CFR 1910.120
35 IAC Subtitle G
Federal Facility Compliance Act

4. Are there any aspects of these necessary standard(s) which do not add value? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards? ☒ YES ☐ NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue? ☐ YES ☐ NO

If yes, continue; otherwise skip to 10.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard? ☐ YES ☐ NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals? ☐ YES ☐ NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program will provide an appropriate level of protection at an acceptable cost. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is largely an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

☐ Major positive impact ☐ Minor negative impact
☐ Minor positive impact ☐ Major negative impact
☒ No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Compliance with above cited laws and regulations requires that the current program be continued. Applicable regulations are implemented by Fermilab ES&H Manual Chapter 8021 (Regulated Chemical Waste Disposal), and HWSF Procedures Manual. When the above standards are approved in the N&S process, internal implementation programs will be modified to be consistent with the standard.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin ☒ Hazard analysis ☒ Identification Team

1. Issue(s)

052. Env - offsite radiation protection / penetrating

Focus group

☐ Emergency Management ☐ Fire Protection ☐ Occupational Safety
☒ Environmental Protection ☐ Management & Oversight ☐ Radiation Protection

2. Is there a necessary standard which applies to this issue? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

4. Are there any aspects of these necessary standard(s) which do not add value? ☐ YES ☐ NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards? ☐ YES ☒ NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 10.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

8. External sufficient standard citation

DOE Order 5400.5 Derived Concentration Guide Table and dose limits to the public (Chapter 2, section 1; Chapter 3)

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard? ☒ YES ☐ NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals? ☐ YES ☐ NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program will provide an appropriate level of protection at an acceptable cost.

13. Pick the basic implementing assumption from the list.

☐ Major positive impact ☐ Minor negative impact
☐ Minor positive impact ☐ Major negative impact
☒ No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

When the above standard is approved in the N&S process, internal implementation programs will be modified to be consistent with the standard.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin ☒ Hazard analysis ☐ Identification Team

1. Issue(s)

053. Env - ozone depleting substances

Focus group
☐ Emergency Management ☐ Fire Protection ☐ Occupational Safety
☒ Environmental Protection ☐ Management & Oversight ☐ Radiation Protection

2. Is there a necessary standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

Clean Air Act Amendments 1990, 42 USC 7401 et seq.
40 CFR 82
E.O. 12843

4. Are there any aspects of these necessary standard(s) which do not add value? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards? ☒ YES ☐ NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue? ☐ YES ☐ NO

If yes, continue; otherwise skip to 10.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard? ☐ YES ☐ NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals? ☐ YES ☐ NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program will provide an appropriate level of protection at an acceptable cost. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

☐ Major positive impact ☐ Minor negative impact
☐ Minor positive impact ☐ Major negative impact
☒ No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

In the opinion of the invloved subject-matter experts, this program is both successful and cost-effective.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin ☒ Hazard analysis ☐ Identification Team

1. Issue(s)

054. Env - PCBs

Focus group ☐ Emergency Management ☐ Fire Protection ☐ Occupational Safety
☒ Environmental Protection ☐ Management & Oversight ☐ Radiation Protection

2. Is there a necessary standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

TSCA, 15 USC 2601 et seq.
40 CFR 268
40 CFR 302
40 CFR 761
29 CFR 1910.1000
RCRA Part B permit
35 IAC 728
35 IAC 808-809

4. Are there any aspects of these necessary standard(s) which do not add value? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards? ☒ YES ☐ NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue? ☐ YES ☐ NO

If yes, continue; otherwise skip to 10.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard? ☐ YES ☐ NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals? ☐ YES ☐ NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program will provide an appropriate level of protection at an acceptable cost. Strict adherence to the indicated statutes and regulations, supplemented by internal implementation procedures will ensure that the Laboratory is protected from legal vulnerability and dangers to personnel and the physics program. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

☐ Major positive impact ☐ Minor negative impact
☐ Minor positive impact ☐ Major negative impact
☒ No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Maintain current program, revise and update ES&H Manual chapters. Part of the ES&H Manual chapter 8021 or a Fermilab PCB policy should state that exempt quantities of PCBs (e.g. small ballasts, capacitors) will be managed as Illinois Special Waste. Lab policy should be to move toward eliminating all PCB's.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin ☒ Hazard analysis ☒ Identification Team

1. Issue(s)

056. Env - regulated chemical waste / non-hazardous

Focus group

☐ Emergency Management ☐ Fire Protection ☐ Occupational Safety
☒ Environmental Protection ☐ Management & Oversight ☐ Radiation Protection

2. Is there a necessary standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

40 CFR 259
35 IAC 807- 810
35 IAC 700 Subpart F
E.O. 12580
E.O. 12856
E.O. 12873

4. Are there any aspects of these necessary standard(s) which do not add value? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards? ☒ YES ☐ NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue? ☐ YES ☐ NO

If yes, continue; otherwise skip to 10.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard? ☐ YES ☐ NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals? ☐ YES ☐ NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program will provide an appropriate level of protection at an acceptable cost. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

☐ Major positive impact ☐ Minor negative impact
☐ Minor positive impact ☐ Major negative impact
☒ No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Current program includes ES&H Manual chapter 8021, which will be revised and modified. Experience has demonstrated that this program is both successful and cost-effective.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin ☒ Hazard analysis ☐ Identification Team

1. Issue(s)

058. Env - sanitary and sewer discharges

Focus group ☐ Emergency Management ☐ Fire Protection ☐ Occupational Safety
☒ Environmental Protection ☐ Management & Oversight ☐ Radiation Protection

2. Is there a necessary standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

Clean Water Act, 33 USC 1251 et seq.
40 CFR 116-117
40 CFR 121-125 (exc. 123)
35 IAC Subtitle C and pre-treatment permits pursuant
Batavia Code of Regulations, City Ordinance, Section 8-3-10-3
City Code of Warrenville, IL Title 7, Chapter 4

4. Are there any aspects of these necessary standard(s) which do not add value? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards? ☐ YES ☒ NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 10.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

8. External sufficient standard citation

Standard Methods for the Examination of Water and Wastewater, 18th Ed., APHA (1992)
DOE 5400.5 (Chapter 2, Section 3)

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard? ☒ YES ☐ NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals? ☐ YES ☐ NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program of adherence to the indicated laws and regulations will be supplemented by a program of monitoring sewer effluent constituents and flow at the site boundaries. This combination will ensure that discharges from the site are within all appropriate limits. The level of risk is consistent with management performance goals because manaegement expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution. The additional standard indicated in #8, above, is necessary as a reference for industry-wide practice in this area. It contains no "requirements" other than adherence to standard practices.

13. Pick the basic implementing assumption from the list.

☐ Major positive impact ☐ Minor negative impact
☐ Minor positive impact ☐ Major negative impact
☒ No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin ☒ Hazard analysis ☐ Identification Team

1. Issue(s)

059. Env - solid waste management units and inactive waste sites

Focus group

☐ Emergency Management ☐ Fire Protection ☐ Occupational Safety
☒ Environmental Protection ☐ Management & Oversight ☐ Radiation Protection

2. Is there a necessary standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

RCRA, 42 USC 6901 et seq.
RCRA Part B permit
35 IAC 620
35 IAC 724
35 IAC 815
CERCLA/SARA 42 USC 6901 et seq.
40 CFR 300
40 CFR 302
40 CFR 355
40 CFR 370
40 CFR 372

4. Are there any aspects of these necessary standard(s) which do not add value? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards? ☒ YES ☐ NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue? ☐ YES ☐ NO

If yes, continue; otherwise skip to 10.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard? ☐ YES ☐ NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals? ☐ YES ☐ NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program will ensure compliance with applicable RCRA and CERCLA regulations and requirements. The current program also ensures that existing and future SWMUs will be effectively identified, investigated and remediated if necessary through our program supervised by the Illinois EPA. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

☐ Major positive impact ☐ Minor negative impact
☐ Minor positive impact ☐ Major negative impact
☒ No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

All implementation will be completed in conjunction with Illinois EPA officials. In the opinion of the involved subject-matter experts, this program is both successful and cost-effective.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin ☒ Hazard analysis ☐ Identification Team

1. Issue(s)

060. Env - surface water

Focus group ☐ Emergency Management ☐ Fire Protection ☐ Occupational Safety
☒ Environmental Protection ☐ Management & Oversight ☐ Radiation Protection

2. Is there a necessary standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

Clean Water Act, 33 USC 1251 et seq.
40 CFR 110 -125 (exc. 123)
40 CFR 131
40 CFR 136
40 CFR 230
40 CFR 401 - 403
33 CFR 320 - 323
33 CFR 328 - 330.
35 IAC Subtitle C
92 IAC 700 and all permits pursuant
92 IAC 704 and all permits pursuant
92 IAC 708 and all permits pursuant
E.O. 10988
E.O. 10990
10 CFR 1022

4. Are there any aspects of these necessary standard(s) which do not add value? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards? ☐ YES ☒ NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 10.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

8. External sufficient standard citation

Standards and Specifications for Soil Erosion and Sediment Control, 10/87, IEPA 87-102
DOE Order 5400.5 (Ch. 2, sec. 1;Ch. 3)

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard? ☒ YES ☐ NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals? ☐ YES ☐ NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program will provide an appropriate level of protection at an acceptable cost. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution. The additional standard indicated in #8, above, is necessary as a reference for industry-wide practice in this area. It contains no "requirements" other than adherence to standard practices.

13. Pick the basic implementing assumption from the list.

☐ Major positive impact ☐ Minor negative impact
☐ Minor positive impact ☐ Major negative impact
☒ No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective. When the above standard is approved in the N&S process, internal implementation programs will be modified to be consistent with the standard.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin ☒ Hazard analysis ☐ Identification Team

1. Issue(s)

061. Env - transformer oil / non-PCB

Focus group
☐ Emergency Management ☐ Fire Protection ☐ Occupational Safety
☒ Environmental Protection ☐ Management & Oversight ☐ Radiation Protection

2. Is there a necessary standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

Clean Water Act, 33 USC 1251 et seq.
40 CFR 110
40 CFR 112
40 CFR 300 - 302
29 CFR 1910.106
35 IAC 808 - 809

4. Are there any aspects of these necessary standard(s) which do not add value? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards? ☒ YES ☐ NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue? ☐ YES ☐ NO

If yes, continue; otherwise skip to 10.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard? ☐ YES ☐ NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals? ☐ YES ☐ NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continued application of the appropriate regulations and laws will ensure the protection of the environment from transformer oil spills. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

☐ Major positive impact ☐ Minor negative impact
☒ Minor positive impact ☐ Major negative impact
☐ No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Implementation of these standards would require that a consistent policy for secondary containment strategy be adopted for all existing and new transformers. An adequate set of procedures will utilize appropriate industry and/or other association standards as necessary (NFPA 30, Factory Mutual 5-4/14-8,ANSI/IEEE 446).

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin ☒ Hazard analysis ☐ Identification Team

1. Issue(s)

062. Fire - boiler, heating systems, and (commercial) appliances

Focus group ☐ Emergency Management ☒ Fire Protection ☐ Occupational Safety ☐ Environmental Protection ☐ Management & Oversight ☐ Radiation Protection

2. Is there a necessary standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

41 IAC - Fire Protection
100 IAC - Fire Prevention and Safety
120 IAC - Boiler and Pressure Vessels
29 CFR 1910 Subpart E - Means of Egress
29 CFR 1910 Subpart L - Fire Protection
29 CFR 1910 Subpart S - Electrical
29 CFR 1926 Subpart F - Fire Protection and Prevention
29 CFR 1926 Subpart K - Electrical

4. Are there any aspects of these necessary standard(s) which do not add value? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards? ☐ YES ☒ NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 10.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

8. External sufficient standard citation

BOCA National Building Code
BOCA Fire Prevention Code
National Fire Protection Association National Fire Codes (NFPA Standards List)
UL Listing

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard? ☒ YES ☐ NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals? ☐ YES ☐ NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

This is an industrial hazard, and the minimal statutory requirements have been found insufficient by municipalities and fire insurers. To be consistent with management performance goals, the level of risk must be further controlled by application of building code and national fire code standards as is the case in industry.

13. Pick the basic implementing assumption from the list.

☐ Major positive impact ☐ Minor negative impact
☐ Minor positive impact ☐ Major negative impact
☒ No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

There are a few known noncompliances regarding heating system clearances which would be mitigated as these existing older heating systems are replaced. (As noted in the title of this issue, these standards apply only to commerical appliances.)

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin ☒ Hazard analysis ☐ Identification Team

1. Issue(s)

063. Fire - cigarette smoking

Focus group ☐ Emergency Management ☒ Fire Protection ☐ Occupational Safety ☐ Environmental Protection ☐ Management & Oversight ☐ Radiation Protection

2. Is there a necessary standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

41 IAC - Fire Protection
100 IAC - Fire Prevention and Safety
29 CFR 1910 Subpart H - Hazardous Materials
29 CFR 1910 Subpart L - Fire Protection
29 CFR 1926 Subpart F - Fire Protection and Prevention
EPA Air Quality Stds.

4. Are there any aspects of these necessary standard(s) which do not add value? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards? ☒ YES ☐ NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue? ☐ YES ☐ NO

If yes, continue; otherwise skip to 10.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard? ☐ YES ☐ NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals? ☐ YES ☐ NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The statutory requirements provide a level of risk that is consistent with management performance goals. The risk is the same as that encountered in commercial or industrial environments.

13. Pick the basic implementing assumption from the list.

☐ Major positive impact ☐ Minor negative impact
☐ Minor positive impact ☐ Major negative impact
☒ No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin ☒ Hazard analysis ☐ Identification Team

1. Issue(s)

064. Fire - electrical

Focus group ☐ Emergency Management ☒ Fire Protection ☐ Occupational Safety ☐ Environmental Protection ☐ Management & Oversight ☐ Radiation Protection

2. Is there a necessary standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

41 IAC - Fire Protection
100 IAC - Fire Prevention and Safety
29 CFR 1910 Subpart E - Means of Egress
29 CFR 1910 Subpart H - Hazardous Materials;
29 CFR 1910 Subpart L - Fire Protection
29 CFR 1910 Subpart S - Electrical
29 CFR 1926 Subpart F - Fire Protection and Prevention
29 CFR 1926 Subpart K - Electrical

4. Are there any aspects of these necessary standard(s) which do not add value? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards? ☐ YES ☒ NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 10.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

8. External sufficient standard citation

BOCA National Building Code
BOCA Fire Prevention Code
National Fire Protection Association National Fire Codes (NFPA Standards List)
UL Listing

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard? ☐ YES ☒ NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals? ☒ YES ☐ NO

11. Describe nature and status of internal sufficient standard.

Fermilab ES&H Manual Chapters 5043, Management and use of cable tray systems, and 5046, Low-Voltage, High-Current Power Distribution Systems.
These standards require proper installation of cable trays used for electrical conductors and overcurrent protection for all current carrying conductors in high-current, low-voltage power distribution systems. They have been fully implemented and integrated into management and oversight practices.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The level of risk is consistent with management performance goals because municipal and industrial standards have been selected for the standard residential/commercial/industrial electrical equipment, and internal standards have been selected for the unique electrical equipment not found elsewhere. Insurers and municipalities have long found that statutory requirements were insufficient and that the building code and national fire code standards selected were necessary to achieve adequate protection.

13. Pick the basic implementing assumption from the list.

☐ Major positive impact ☐ Minor negative impact
☒ Minor positive impact ☐ Major negative impact
☐ No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective. Adoption of the BOCA National Building Code will require changes to construction and contract documents.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin ☒ Hazard analysis ☐ Identification Team

1. Issue(s)

065. Fire - flammable liquids and gases

Focus group ☐ Emergency Management ☒ Fire Protection ☐ Occupational Safety ☐ Environmental Protection ☐ Management & Oversight ☐ Radiation Protection

2. Is there a necessary standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

41 IAC - Fire Protection
100 IAC - Fire Prevention and Safety;
160 IAC - Storage, Transportation, Sale and Use of Gasoline and Volatrile Oils: Rules Relating to General Storage
170 IAC - Storage, Transportation, Sale and Use of Petroleum and Other Regulated Substances
180 IAC - Storage Transportaition, Sale and Use of Volatile Oils
29 IAC - Emergency Services, Disasters, and Civil Defense, Chapter I: Emergency Services and Disaster Agency, Subchapter f: Chemical Safety
IL Public Act 84-852, Illinois Chemical Safety Act
29 CFR 1910 Subpart E - Means of Egress
29 CFR 1910 Subpart H - Hazardous Materials
29 CFR 1910 Subpart L - Fire Protection
29 CFR 1910 Subpart S - Electrical
29 CFR 1926 Subpart F - Fire Protection and Prevention
29 CFR 1926 Subpart K - Electrical

4. Are there any aspects of these necessary standard(s) which do not add value? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards? ☐ YES ☒ NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 10.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

8. External sufficient standard citation

BOCA National Building Code
BOCA Fire Prevention Code
National Fire Protection Association National Fire Codes (NFPA Standards List)
UL Listing

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard? ☐ YES ☒ NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals? ☒ YES ☐ NO

11. Describe nature and status of internal sufficient standard.

Fermilab ES&H Manual, Chapter 6020.3, Storage and Use of Flammable Gases at Physics Experiments
This standard, which governs use of flammable gases in detectors, provides a graded approach based on the inventory of flammable gas involved. The measures and precautions called out are needed because particle detectors cannot be built to comply with the electrical guidelines from the National Electrical Code, NFPA70, Article 501 for NEC Class 1, Group D, Division 2 installations. This standard has been fully implemented and integrated into management and oversight practices.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The level of risk is consistent with management performance goals because the standards selected are those used by industry, and an internal standard has been selected for those unique cases where the building code and national fire code standards cannot be applied. The internal standard was designed to provide an equivalent or superior level of hazard mitigation and comply with the intent of the codes.

13. Pick the basic implementing assumption from the list.

☐ Major positive impact ☐ Minor negative impact
☒ Minor positive impact ☐ Major negative impact
☐ No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective. Adoption of the BOCA National Building Code will require some changes to construction and contract documents.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin ☒ Hazard analysis ☐ Identification Team

1. Issue(s)

066. Fire - mobile structures

Focus group ☐ Emergency Management ☒ Fire Protection ☐ Occupational Safety ☐ Environmental Protection ☐ Management & Oversight ☐ Radiation Protection

2. Is there a necessary standard which applies to this issue? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

NOTE: There are no specific legal requirements identified as applicable solely to mobile structures. However, the entirety of OSHA and Illinois Law is applicable to the occupancy and specific use of the structure and contents.

4. Are there any aspects of these necessary standard(s) which do not add value? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards? ☐ YES ☒ NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 10.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

8. External sufficient standard citation

BOCA National Building Code
BOCA Fire Prevention Code
National Fire Protection Association National Fire Codes (NFPA Standards List)
UL Listing

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard? ☒ YES ☐ NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals? ☐ YES ☐ NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the standards chosen are industrial standards.

13. Pick the basic implementing assumption from the list.

☐ Major positive impact ☐ Minor negative impact
☐ Minor positive impact ☐ Major negative impact
☒ No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

An implementation guide is needed to assure appropriate application of the cited standards. The existing DOE/EV 0043, covering Mobile Structures would serve as a model.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin ☒ Hazard analysis ☐ Identification Team

1. Issue(s)

067. Fire - special hazardous materials

Focus group ☐ Emergency Management ☒ Fire Protection ☐ Occupational Safety ☐ Environmental Protection ☐ Management & Oversight ☐ Radiation Protection

2. Is there a necessary standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

29 IAC - Emergency Services, Disasters, and Civil Defense, Chapter I: Emergency Services and Disaster Agency, Subchapter f: Chemical Safety
IL Public Act 84-852, Illinois Chemical Safety Act
29 CFR 1910 Subpart E - Means of Egress;
29 CFR 1910 Subpart H - Hazardous Materials
29 CFR 1910 Subpart I - Personal Protective Equipment
29 CFR 1910 Subpart L - Fire Protection
29 CFR 1910 Subpart S - Electrical
29 CFR 1926 Subpart F - Fire Protection and Prevention
29 CFR 1926 Subpart Z - Toxic and Hazardous Substances
41 IAC - Fire Protection
140 IAC - Policy and Procedures Manual for Fire Protection Personnel

4. Are there any aspects of these necessary standard(s) which do not add value? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards? ☐ YES ☒ NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 10.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

8. External sufficient standard citation

BOCA National Building Code
BOCA Fire Prevention Code
National Fire Protection Association National Fire Codes (NFPA Standards List)
UL Listing

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard? ☐ YES ☒ NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals? ☒ YES ☐ NO

11. Describe nature and status of internal sufficient standard.

There is always the possibility of introduction of unique one-of-a-kind materials by a physics experiment in order to achieve its research objectives. By making this entry, Fermilab acknowledges its responsibility to develop adequate internal standards for those cases where consensus external standards are not available or not applicable. Individual hazardous material usages may require specific implementation standards to provide for safe usage; this level of risk acknowledgement is to verify the commitment to do so.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the standards chosen are industrial standards.

13. Pick the basic implementing assumption from the list.

☐ Major positive impact ☒ Minor negative impact
☐ Minor positive impact ☐ Major negative impact
☐ No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Implementation for identified hazards of this class has existed since the Laboratory began. The key element is recognition, identification and assessment of new instances. The present laboratory policies for screening and inspecting new initiatives or modifications to existing facilities are especially designed to capture special hazardous materials.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin ☐ Hazard analysis ☒ Identification Team

1. Issue(s)

067B. Fire - hydrogen targets

Focus group ☐ Emergency Management ☐ Fire Protection ☒ Occupational Safety ☐ Environmental Protection ☐ Management & Oversight ☐ Radiation Protection

2. Is there a necessary standard which applies to this issue? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

4. Are there any aspects of these necessary standard(s) which do not add value? ☐ YES ☐ NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards? ☐ YES ☒ NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue? ☐ YES ☒ NO

If yes, continue; otherwise skip to 10.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard? ☐ YES ☐ NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals? ☒ YES ☐ NO

11. Describe nature and status of internal sufficient standard.

Fermilab ES&H Manual Chapter 5032.2, Guidelines For the Design, Fabrication, Testing, Installation, and Operation of LH2 Targets Fermilab has developed these guidelines to address the hazards associated with these targets. The latest version of this document has been in existence and use for over 6 years.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherance to the internal standard in #11 has resulted in levels of ES&H and cost performance that are consistent with management goals.

13. Pick the basic implementing assumption from the list.

☐ Major positive impact ☐ Minor negative impact
☐ Minor positive impact ☐ Major negative impact
☒ No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

The internal standards identified in #11 have proven to be both successful and cost-effective.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin ☒ Hazard analysis ☒ Identification Team

1. Issue(s)

068. Fire - special occupancies / accelerator and beam line enclosures

Focus group

☐ Emergency Management ☒ Fire Protection ☐ Occupational Safety
☐ Environmental Protection ☐ Management & Oversight ☐ Radiation Protection

2. Is there a necessary standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

41 IAC - Fire Protection
100 IAC - Fire Prevention and Safety
29 CFR 1910 Subpart E - Means of Egress
29 CFR 1910 Subpart L - Fire Protection
29 CFR 1910 Subpart S - Electrical
29 CFR 1926 Subpart F - Fire Protection and Prevention
29 CFR 1926 Subpart K - Electrical

4. Are there any aspects of these necessary standard(s) which do not add value? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards? ☐ YES ☒ NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 10.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

8. External sufficient standard citation

BOCA National Building Code
BOCA Fire Prevention Code
NFPA 101 & 101A current editions
National Fire Protection Association National Fire Codes (NFPA Standards List)
UL Listing

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard? ☐ YES ☒ NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals? ☒ YES ☐ NO

11. Describe nature and status of internal sufficient standard.

Fermilab ES&H Manual Chapter 5043, Management and use of cable tray systems.
This standard requires proper installation of cable trays used for electrical conductors. It has been fully implemented and integrated into management and oversight practices.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The level of risk is consistent with management performance goals because the current version of the life safety code is selected instead of the outdated version referred to in the OSHA regulation. The standards selected specify an acceptable level of risk, and the current editions provide for the alternate methods of compliance needed for accelerator and beam line enclosures. The internal standard addresses cable tray applications which are not addressed in Article 318 of NFPA 70.

13. Pick the basic implementing assumption from the list.

☐ Major positive impact ☐ Minor negative impact
☐ Minor positive impact ☐ Major negative impact
☒ No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Fermilab is committed to implement the standards utilizing good engineering practices to provide a level of safety consistent with the intent, in full accordance with recognized practice throughout industry. Accelerator and beam line enclosures, like subways, highway tunnels and mines, necessitate means equivalent to the prescribed ones to achieve the ES&H goals and simultaneously perform their function.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin ☒ Hazard analysis ☐ Identification Team

1. Issue(s)

069. Fire - spontaneous combustion

Focus group ☐ Emergency Management ☒ Fire Protection ☐ Occupational Safety ☐ Environmental Protection ☐ Management & Oversight ☐ Radiation Protection

2. Is there a necessary standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

41 IAC - Fire Protection
100 IAC - Fire Prevention and Safety
29 CFR 1910 Subpart E - Means of Egress
29 CFR 1910 Subpart L - Fire Protection
29 CFR 1926 Subpart F - Fire Protection and Prevention

4. Are there any aspects of these necessary standard(s) which do not add value? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards? ☒ YES ☐ NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue? ☐ YES ☐ NO

If yes, continue; otherwise skip to 10.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard? ☐ YES ☐ NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals? ☐ YES ☐ NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the standards selected are industrial standards.

13. Pick the basic implementing assumption from the list.

☐ Major positive impact ☐ Minor negative impact
☒ Minor positive impact ☐ Major negative impact
☐ No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Existing fire prevention, housekeeping, and self assessment activities adequately address this and many similar issues. However, there is a need for coordination to improve both the physical effectiveness and the cost effectiveness of these efforts.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin ☒ Hazard analysis ☐ Identification Team

1. Issue(s)

070. Fire - stationary combustion engines

Focus group

☐ Emergency Management ☒ Fire Protection ☐ Occupational Safety
☐ Environmental Protection ☐ Management & Oversight ☐ Radiation Protection

2. Is there a necessary standard which applies to this issue? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

4. Are there any aspects of these necessary standard(s) which do not add value? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards? ☐ YES ☒ NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 10.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

8. External sufficient standard citation

NFPA 37: Standards for the Installation and Use of Stationary Combustion Engines and Gas Turbines.

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard? ☒ YES ☐ NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals? ☐ YES ☐ NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the standards selected are industrial standards.

13. Pick the basic implementing assumption from the list.

☐ Major positive impact ☒ Minor negative impact
☐ Minor positive impact ☐ Major negative impact
☐ No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

There are a few known noncompliances which would be mitigated programmatically as older units are replaced or upgraded. In addition, where concerns merit, a hazard analysis could dictate more rapid action for compliance.
This item is to be considered in parallel with item 65 - Flammable Liquids and Gases. It is given that full compliance with the standards cited there is the case.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin ☒ Hazard analysis ☐ Identification Team

1. Issue(s)

071. Fire - storage of combustibles

Focus group ☐ Emergency Management ☒ Fire Protection ☐ Occupational Safety ☐ Environmental Protection ☐ Management & Oversight ☐ Radiation Protection

2. Is there a necessary standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

41 IAC - Fire Protection
100 IAC - Fire Prevention and Safety
29 IAC - Emergency Services, Disasters, and Civil Defense, Chapter I: Emergency Services and Disaster Agency, Subchapter f: Chemical Safety
IL Public Act 84-852, Illinois Chemical Safety Act
29 CFR 1910 Subpart E - Means of Egress
29 CFR 1910 Subpart H - Hazardous Materials
29 CFR 1910 Subpart L - Fire Protection
29 CFR 1910 Subpart S - Electrical
29 CFR 1926 Subpart F - Fire Protection and Prevention
29 CFR 1926 Subpart Z - Toxic and Hazardous Substances

4. Are there any aspects of these necessary standard(s) which do not add value? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards? ☐ YES ☒ NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 10.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

8. External sufficient standard citation

BOCA National Building Code
BOCA Fire Prevention Code
National Fire Protection Association National Fire Codes (NFPA Standards List)
UL Listing

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard? ☒ YES ☐ NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals? ☐ YES ☐ NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the standards selected are industrial standards.

13. Pick the basic implementing assumption from the list.

☐ Major positive impact ☐ Minor negative impact
☐ Minor positive impact ☐ Major negative impact
☒ No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

The overall program exists and has been implemented. Regular inspections which include housekeeping/combustibles are included in mandatory self assessment activities.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin ☒ Hazard analysis ☒ Identification Team

1. Issue(s)

072. Fire - transportation / rail, vehicle, and fueling
077B. HazMat transport - fire/explostion / onsite

Focus group ☐ Emergency Management ☒ Fire Protection ☐ Occupational Safety ☐ Environmental Protection ☐ Management & Oversight ☐ Radiation Protection

2. Is there a necessary standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

41 IAC - Fire Protection
100 IAC - Fire Prevention and Safety
160 IAC - Storage, Transportation, Sale and Use of Gasoline and Volatrile Oils: Rules Relating to General Storage
170 IAC - Storage, Transportation, Sale and Use of Petroleum and Other Regulated Substances
180 IAC - Storage Transportaition, Sale and Use of Volatile Oils
49 CFR 383.23 Commercial Drivers License
49 CFR 393.95 Emergency Equipment on Vehicles
49 CFR 397.11 Fires
49 CFR 397.13 Smoking
49 CFR 397.15 Fueling
49 CFR177.848 C (Segregation table for hazardous materials)

4. Are there any aspects of these necessary standard(s) which do not add value? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards? ☐ YES ☒ NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 10.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

8. External sufficient standard citation

BOCA National Building Code
BOCA Fire Prevention Code
National Fire Protection Association National Fire Codes (NFPA Standards List)
UL Listing

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard? ☒ YES ☐ NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals? ☐ YES ☐ NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The level of risk is consistent with management performance goals because the statutory requirements have been supplemented with building code and national fire code standards. This is the same solution that has been selected by industry and municipalities.

13. Pick the basic implementing assumption from the list.

☐ Major positive impact ☐ Minor negative impact
☐ Minor positive impact ☐ Major negative impact
☒ No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

The standards have been implemented. Experience has demonstrated that this program is both successful and cost-effective. Regulation and inspection functions are performed by the State of Illinois authorities having jurisdiction.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin ☒ Hazard analysis ☐ Identification Team

1. Issue(s)

073. Fire - welding near combustibles
074. Fire - spark producing tools near combustibles

Focus group ☐ Emergency Management ☒ Fire Protection ☐ Occupational Safety ☐ Environmental Protection ☐ Management & Oversight ☐ Radiation Protection

2. Is there a necessary standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

41 IAC - Fire Protection
100 IAC - Fire Prevention and Safety
29 CFR 1910 Subpart L - Fire Protection
29 CFR 1910 Subpart Q - Welding, Cutting and Brazing
29 CFR 1926 Subpart F - Fire Protection and Prevention

4. Are there any aspects of these necessary standard(s) which do not add value? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards? ☐ YES ☒ NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 10.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

8. External sufficient standard citation

BOCA Fire Prevention Code
NFPA 1: Fire Prevention Code
NFPA 51: Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes
NFPA 51B: Standard for Fire Protection in Use of Cutting and Welding Processes.

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard? ☐ YES ☒ NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals? ☒ YES ☐ NO

11. Describe nature and status of internal sufficient standard.

Fermilab ES&H Manual Chapter 6020.3, Storage and Use of Flammable Gases at Physics Experiments.
This standard calls for a minimum separation between welding, burning, brazing and grinding operations and physics experiment apparatus using flammable gases. If the minimum separation is not practical, the flammable gas inventory must first be removed from the apparatus before operations are permitted. This requirement has been integrated into the welding, burning and brazing permit control process.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The level of risk is consistent with management performance goals because the standards selected are those used by industry, and an internal standard has been selected for those unique cases where the combustible is flammable gas in physics experiment apparatus. The internal standard was designed to provide an equivalent or superior level of hazard mitigation and comply with the intent of the codes.

13. Pick the basic implementing assumption from the list.

☐ Major positive impact ☐ Minor negative impact
☐ Minor positive impact ☐ Major negative impact
☒ No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Implementation has long been in place using the standard industrial practice of a formal permit process, also recognized as considerably more efficient than a fire watch approach. The permit process also unites need-to-know and ES&H protection concerns thus uniting two administratively separate concerns in a cost effective manner.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin ☒ Hazard analysis ☒ Identification Team

1. Issue(s)

075A. HazMat transport - bad road conditions / offsite

Focus group ☐ Emergency Management ☐ Fire Protection ☒ Occupational Safety ☐ Environmental Protection ☐ Management & Oversight ☐ Radiation Protection

2. Is there a necessary standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

49 CFR 392.14 (Hazardous conditions; extreme caution)

4. Are there any aspects of these necessary standard(s) which do not add value? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards? ☒ YES ☐ NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue? ☐ YES ☐ NO

If yes, continue; otherwise skip to 10.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard? ☐ YES ☐ NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals? ☐ YES ☐ NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherance to the statutory requirement in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals inlcuding the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

☐ Major positive impact ☐ Minor negative impact
☐ Minor positive impact ☐ Major negative impact
☒ No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin ☒ Hazard analysis ☒ Identification Team

1. Issue(s)

075B. HazMat transport - bad road conditions / onsite

Focus group ☐ Emergency Management ☐ Fire Protection ☒ Occupational Safety ☐ Environmental Protection ☐ Management & Oversight ☐ Radiation Protection

2. Is there a necessary standard which applies to this issue? ☐ YES ☒ NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

4. Are there any aspects of these necessary standard(s) which do not add value? ☐ YES ☐ NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards? ☐ YES ☒ NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue? ☒ YES ☐ NO

If yes, continue; otherwise skip to 10.